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L8 ANSWER 1 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN
AB According to a **method** of manufacturing a **membrane electrode assembly** having an excellent elec. power generating capability, a base is coated with a first polymer electrolytic **soln.** to form a first polymer electrolytic membrane which is undried. The undried first polymer electrolytic membrane is coated with a first electrode dispersion, which comprises a second polymer electrolytic **soln.** and a catalyst carried on a catalyst carrier and dissolved therein. The first electrode dispersion is dried to form a first electrode, thereby forming a pos.-electrode membrane electrode assembly. Another base is coated with a third polymer electrolytic **soln.** to form a second polymer electrolytic membrane which is undried. The undried second polymer electrolytic membrane is coated with a second electrode dispersion, which comprises a fourth polymer electrolytic **soln.** and a catalyst carried on a catalyst carrier and dissolved therein. The second electrode dispersion is dried to form a second electrode, thereby forming a neg.-electrode membrane electrode assembly. The membrane electrode assemblies are integrally combined with each other by joining the first and second polymer electrolytic membranes with a fifth polymer electrolytic **soln.** interposed therebetween.

ACCESSION NUMBER: 2003:930766 CAPLUS

DOCUMENT NUMBER: 139:382572

TITLE: **Method of manufacturing membrane electrode assembly**

INVENTOR(S): Kanaoka, Nagayuki; Takahashi, Ryoichiro; Asano, Yoichi

PATENT ASSIGNEE(S): Japan

SOURCE: U.S. Pat. Appl. Publ., 9 pp.

CODEN: USXXCO

DOCUMENT TYPE: Patent

LANGUAGE: English

FAMILY ACC. NUM. COUNT: 1

PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003219532	A1	20031127	US 2003-445324	20030527
JP 2003346835	A2	20031205	JP 2002-151745	20020527
PRIORITY APPLN. INFO.:			JP 2002-151745 A	20020527

L8 ANSWER 2 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN

AB This invention relates to sulfonated copolymers for proton-conducting membranes allowing the dimensional stability of polymer electrolyte membrane over a wide temperature range and avoiding excessive membrane swelling in direct methanol fuel cells. The **method** for the preparation of a sulfonated polymers is included the steps of combining a first monomer having at least one sulfonate group and having at least two leaving groups with a second comonomer having at least two groups that can displace at least one leaving group of the first monomer and a third comonomer having at least two leaving groups, and a fourth comonomer having at least two displacing groups that can react with the leaving groups of either said first comonomer or said third comonomer and is used for proton exchange membranes, catalyst coated membranes and **membrane electrode assembly** preparation. Exampled polymer is prepared by heating of the mixture of 9.13 g of bisphenol A, 5.67 g of 4,4'-difluorobenzophenone, 5.91 g of 4,4'-difluoro-3,3'-disulfonylbenzophenone and 7.2 g of potassium carbonate in a mixture of DMSO and toluene at 150° for 4 h and keeping at 180° for 6 h with further precipitation with acetone or methanol. The dry polymer is dissolved in

DMAC for 20% coating **soln.** and the obtained 2 mil thick membrane is soaked in sulfuric acid for 16 h.

ACCESSION NUMBER: 2003:913207 CAPLUS

DOCUMENT NUMBER: 139:396487
 TITLE: Sulfonated copolymer for polymer electrolyte membrane
 INVENTOR(S): Cao, Shuguang; Xu, Helen; Chen, Jingping
 PATENT ASSIGNEE(S): Polyfuel, Inc., USA
 SOURCE: PCT Int. Appl., 32 pp.
 CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2003095509	A1	20031120	WO 2003-US15178	20030513
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SC, SD, SE, SG, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM			
RW:	GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IT, LU, MC, NL, PT, RO, SE, SI, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG			
PRIORITY APPLN. INFO.:			US 2002-381136P	P 20020513
			US 2002-426540P	P 20021115
			US 2003-446395P	P 20030210
REFERENCE COUNT:	6	THERE ARE 6 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT		

L8 ANSWER 3 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN
 AB The invention concerns a **method** of manufacturing fuel cell
membrane electrode assemblies using
soln. cast films, and the resulting electrode assemblies. The
assemblies are prepared by applying a catalyst slurry onto a decal,
subsequently applying ionomer **soln.** and at least partially
curing the ionomer.
 ACCESSION NUMBER: 2003:862784 CAPLUS
 DOCUMENT NUMBER: 139:340065
 TITLE: Preparation of fuel cell electrode assemblies
 INVENTOR(S): Grot, Stephen Andreas
 PATENT ASSIGNEE(S): Ion Power, Inc., USA
 SOURCE: U.S., 8 pp., Cont.-in-part of U.S. Ser. No. 669,623,
abandoned.
 CODEN: USXXAM
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 6641862	B1	20031104	US 2000-710975	20001110
WO 2002039525	A1	20020516	WO 2001-US46837	20011109
W:	AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW			
RW:	AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR			
AU 2002028840	A5	20020521	AU 2002-28840	20011109

EP 1350279 A1 20031008 EP 2001-989960 20011109
 R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT,
 IE, SI, LT, LV, FI, RO, MK, CY, AL, TR
 PRIORITY APPLN. INFO.: US 1999-155578P P 19990924
 US 2000-669623 B2 20000925
 US 2000-710975 A 20001110
 WO 2001-US46837 W 20011109
 REFERENCE COUNT: 9 THERE ARE 9 CITED REFERENCES AVAILABLE FOR THIS
 RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT

L8 ANSWER 4 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN
 AB Improved **methods** and devices for the synthesis of hydrogen peroxide employing redox catalysts in a gas diffusion electrode or **membrane electrode assembly** in a semi-chemical/electrochem. system for the production of high purity, stable, usually acidic, aqueous **solns.** of peroxide at high conversion efficiencies without requiring organic solvents.
 ACCESSION NUMBER: 2003:77190 CAPLUS
 DOCUMENT NUMBER: 138:114047
 TITLE: Electrochemical synthesis of hydrogen peroxide
 INVENTOR(S): Gopal, Ramanathan
 PATENT ASSIGNEE(S): The Electrosynthesis Company, Inc., USA
 SOURCE: U.S. Pat. Appl. Publ., 17 pp.
 CODEN: USXXCO
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
US 2003019758	A1	20030130	US 2002-199719	20020719
WO 2003010360	A1	20030206	WO 2002-US23327	20020722
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, OM, PH, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TN, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW, AM, AZ, BY, KG, KZ, MD, RU, TJ, TM RW: GH, GM, KE, LS, MW, MZ, SD, SL, SZ, TZ, UG, ZM, ZW, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, SK, TR, BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG				
PRIORITY APPLN. INFO.:			US 2001-307293P	P 20010722
			US 2002-199719	A 20020719

L8 ANSWER 5 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN
 AB The invention is about **method** of manufacturing fuel cell **membrane electrode assemblies** using **soln.** cast films, and the resulting **membrane electrode assemblies**. The method comprises: (a) applying a catalyst slurry onto a decal, (b) drying the catalyst slurry, (c) applying a **soln.** of ≥ 1 ionomer on the resulting dried catalyst layer, and (d) at least partly curing the ≥ 1 ionomer **soln.** layer. A second membrane electrode assembly component was prepared and the two components were joined with the ionomer layers in contact with each other to form a membrane electrode assembly.

ACCESSION NUMBER: 2002:368813 CAPLUS
 DOCUMENT NUMBER: 136:357525
 TITLE: Preparation of proton exchange membrane fuel cell electrode assemblies
 INVENTOR(S): Grot, Stephen A.
 PATENT ASSIGNEE(S): Ion Power Inc., USA
 SOURCE: PCT Int. Appl., 17 pp.

CODEN: PIXXD2
 DOCUMENT TYPE: Patent
 LANGUAGE: English
 FAMILY ACC. NUM. COUNT: 2
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
WO 2002039525	A1	20020516	WO 2001-US46837	20011109
W: AE, AG, AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, BZ, CA, CH, CN, CO, CR, CU, CZ, DE, DK, DM, DZ, EC, EE, ES, FI, GB, GD, GE, GH, GM, HR, HU, ID, IL, IN, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MA, MD, MG, MK, MN, MW, MX, MZ, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, TZ, UA, UG, UZ, VN, YU, ZA, ZW				
RW: AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE, TR				
US 6641862	B1	20031104	US 2000-710975	20001110
AU 2002028840	A5	20020521	AU 2002-28840	20011109
EP 1350279	A1	20031008	EP 2001-989960	20011109
R: AT, BE, CH, DE, DK, ES, FR, GB, GR, IT, LI, LU, NL, SE, MC, PT, IE, SI, LT, LV, FI, RO, MK, CY, AL, TR				
PRIORITY APPLN. INFO.:			US 2000-710975	A 20001110
			US 1999-155578P	P 19990924
			US 2000-669623	B2 20000925
			WO 2001-US46837	W 20011109
REFERENCE COUNT:	4	THERE ARE 4 CITED REFERENCES AVAILABLE FOR THIS RECORD. ALL CITATIONS AVAILABLE IN THE RE FORMAT		

L8 ANSWER 6 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN
 AB Polymer electrolyte fuel cell parts, e.g., electrolyte membranes and electrodes, are pretreated by placing in humid atm or in aqueous solns ., and electrolyzing water to remove corrosive materials from the parts. Fuel cells are prepared by holding an electrolyte membrane-electrode assembly between a pair of acid resistant separators, pretreating the assembly by the above method, and replacing the acid resistant separators with metal separators. The fuel cells may also be prepared by using the acid resistant separator held assembly to generate electricity, and replacing the acid resistant separators with metal separators, after corrosive materials are removed.
 ACCESSION NUMBER: 2001:745688 CAPLUS
 DOCUMENT NUMBER: 135:275405
 TITLE: Pretreatment method for solid polymer electrolyte fuel cell parts and manufacture of fuel cells using metal separators
 INVENTOR(S): Kamoshita, Shinichi; Morita, Yoshikazu; Kanetsuki, Toshiaki; Izumi, Keiji; Yagami, Yuichi; Takahashi, Takeshi
 PATENT ASSIGNEE(S): Nisshin Steel Co., Ltd., Japan; Toyota Motor Corp.
 SOURCE: Jpn. Kokai Tokkyo Koho, 5 pp.
 CODEN: JKXXAF
 DOCUMENT TYPE: Patent
 LANGUAGE: Japanese
 FAMILY ACC. NUM. COUNT: 1
 PATENT INFORMATION:

PATENT NO.	KIND	DATE	APPLICATION NO.	DATE
JP 2001283874	A2	20011012	JP 2000-93707	20000330
PRIORITY APPLN. INFO.:			JP 2000-93707	20000330

L8 ANSWER 7 OF 7 CAPLUS COPYRIGHT 2004 ACS on STN
 AB A method that allows one to selectively electrodeposit catalyst within the thin active layer of a membrane-electrode

assembly is described. The active layer corresponds to the location of electrochem. reaction in a fuel cell. The method is based on the unique chemical of the membrane/gas-diffusion electrode interface, where metal deposits tend to concentrate if dilute electrolyte **solns.** are used for deposition. Examples of Cu and Pt deposition from aqueous CuSO₄ and Pt(NH₃)₄Cl₂, resp., demonstrate the generality and effectiveness of the method. Electron probe microanal., backscattered electron images, and electrochem. expts. were used to characterize the catalyzed membrane-electrode assemblies. Transport and kinetic parameters were obtained for the Pt(NH₃)₄Cl₂ electrolyte; the parameters can be used in future modeling work to understand and optimize the catalytic process.

ACCESSION NUMBER: 1994:111651 CAPLUS
DOCUMENT NUMBER: 120:111651
TITLE: Selective electrodeposition of catalyst within membrane-electrode structures
AUTHOR(S): Verbrugge, Mark W.
CORPORATE SOURCE: Phys. Chem. Dep., Gen. Motors Res. Dev., Warren, MI, 48090-9055, USA
SOURCE: Journal of the Electrochemical Society (1994), 141(1), 46-53
CODEN: JESOAN; ISSN: 0013-4651
DOCUMENT TYPE: Journal
LANGUAGE: English

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(FILE 'HOME' ENTERED AT 12:25:36 ON 19 FEB 2004)

FILE 'STNGUIDE' ENTERED AT 12:26:08 ON 19 FEB 2004

FILE 'HOME' ENTERED AT 12:26:13 ON 19 FEB 2004

FILE 'CAPLUS' ENTERED AT 12:28:00 ON 19 FEB 2004

L1 1058 S PET(S) SILICONE
L2 0 S L1 AND (FUEL ADJ CELL) AND (MEMBRANE ADJ ELECTRODE ADJ ASSEMBL
L3 1 S L1 AND (FUEL CELL) AND (MEMBRANE ELECTRODE ASSEMBLY)
L4 80 S METHOD (S) (MEMBRANE ELECTRODE ASSEMBLY)
L5 4 S L4 AND (HOT PRESSING)
L6 28 S L4 AND NAFION
L7 49 S L4 NOT L5 NOT L6
L8 7 S L7 AND SOLUTION